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# CURRENT LITERATURE.

## BOOK REVIEWS.

### Botanical teaching.

A TOPIC which is or should be of deep interest to professional botanists in our higher institutions is the nature and quality of the botanical instruction in the secondary schools. Many of them have shown their interest by personal endeavor to help teachers to improve the scope of their courses and to secure proper equipment of laboratories for instruction. This endeavor is bearing fruit, and the rapid improvement in botanical teaching augurs well for future development. Besides the innumerable fugitive addresses to teachers' associations and institutes, several modern text-books and laboratory guides are helping along the good work.

Professor Ganong now contributes a book which will do much to assist teachers to strengthen their botanical work. This book, *The Teaching Botanist*, has a pedagogical purpose, as distinct from the texts and laboratory handbooks. It consists of two independent parts. The first is made up of eight essays on botanical pedagogics, full of excellent ideas, useful suggestions, and earnest admonitions. Many of these reforms botanists have long been advocating. Now that the ideas are pithily put and in permanent form, they will become more widely efficient than heretofore. Those who have proclaimed the new gospel will be delighted to have this book to which they may refer teachers seeking such help. It will save reams of letters and hours of talk.

If we may choose among the good things in this part, the essays on "What botany is of most worth," "On things essential to good botanical teaching," and "On some common errors prejudicial to good botanical teaching" are probably the most useful. But the suggestions on drawing and description, on laboratories and their equipment, on collections, and on books, are excellent and sure to be helpful.

The second part consists of "an outline for a synthetic elementary course in the science of botany," conforming to the principles elucidated in the first part. This course consists of two divisions, the first to elucidate general principles, and the second to present the chief features of the larger groups of plants. The course is divided into various topics with a series of questions and directions which might be put directly into the hands of pupils. These are followed by notes regarding the materials required and remarks on the pedagogical import of the various points called for.

Doubtless few teachers will want to follow exactly this course, nor does the author expect them to do so; but many will certainly derive great help by selecting from it the topics appropriate to their own conditions and having clearly before them the didactic value of the laboratory work.

It may be worth while to point out that the author's principles, which one cannot escape, do not compel the conclusion that it is best to begin the elementary course with a study of seeds. The teacher who now begins by introducing the student to the simple algæ need not feel that he must abandon this method. The excellent principles presented in the second essay may be as well developed by another method. And it is only fair to say that Professor Ganong advises each teacher to make out his own course.

University men will do well to read Dr. Ganong's essays and recommend the book to every teacher of botany.—C. R. B.

### Buds and stipules.

SIR JOHN LUBBOCK has published a book with the above title in the well-known International Scientific Series.<sup>1</sup> There is little or no attempt to give anything new, but rather to place before the world in a somewhat popular style the most interesting results of his previous study.<sup>2</sup>

The author was led to study stipules by the observation of Vaucher that some rock-roses have stipules and others not; the question arose: why? The study of stipules led on to a study of buds, especially their protective structures.

The order of the chapters does not seem particularly logical, and there appears to be more repetition than is needed, even in a popular work. The first two chapters deal in a general way with buds and stipules; the third with the development of leaves and stipules, *i. e.*, their organogeny. The fourth chapter takes up the protection of buds, which may be by older leaves, leaf bases or petioles, stipules, hairs, resins. Detailed examples are given under each head. The author thinks that the shape of leaves is often determined by the shape of the bud or seed, and he attempts to explain in this way why some leaves are lobed and others not. For example, oak buds are short, the leaves are folded in the bud, and hence are lobed. There is possibly a confusion here between *post hoc* and *propter hoc*.

There is a long chapter on the structure of buds, many species being mentioned. Chapter six treats of the forms of stipules, and it is shown how great a variety there is. In the seventh chapter the author discusses the subsidiary uses of stipules. Their general use he conceives to be to cover and protect the buds. They are often important also as organs of photosynthesis;

<sup>1</sup> LUBBOCK, JOHN: On buds and stipules. Crown 8vo. pp. xix + 239. *pl.* 4, *figs.* 340. London: Kegan Paul, Trench, Trübner & Co. L't'd. 1899. 5s.

<sup>2</sup> On stipules. Parts I-IV. Jour. Linn. Soc. Bot. 28, 30, 33. 1890, 1894, 1897.